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REMARKS

The drawings are amended, per the attached Submission, to overcome a few noted informalities contained therein. New Replacement Sheets of formal drawings, accompany this Submission, incorporate all of the requested drawing amendment(s). If any further amendment to the drawings is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

Claims 11, 12 and 14-30 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly amended, by the above claim amendments, and the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections. The entered claim amendments are directed solely at overcoming the raised indefiniteness rejections and are not directed at distinguishing the present invention from the art of record in this case.

Claims 11, 12, 15-17, 20-22, 24-26, 29 and 30 are rejected, under 35 U.S.C. § 103(a), as being unpatentable over Olson et al. 'H964 in view of Hayakawa et al. '269. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

As the Examiner is aware, in order to support an obviousness rejection under 35 U.S.C. § 103(a), the references must suggest, teach or disclose some motivation for one of ordinary skill in the art to combine the references as the Examiner has suggested.

Olson et al. 'H964 arguably discloses a hydrodynamic torque converter including a clutch arranged between the pump impeller and the drive mechanism. The converter further includes a speed detector apparatus 132 providing pump impeller speed signals to an electronic control unit. This speed sensor apparatus 132 is specifically described as a ring magnet 134 connected to the pump impeller as best seen in Fig. 2 which is sensed by a magnetic sensor located in tubular support member 74. Importantly, Olsen et al. 'H964 specifically indicates at column 2, lines 37-50 that this specific magnetic ring speed sensor is critical to the structure and functioning of the disclosed apparatus.

...the present invention features a speed sensor apparatus having an internally located and juxtaposed sensor unit and a ring magnet capable of generating at least one electrical output signal related to the speed of an element generally entrapped within the mechanism. The instant speed sensor apparatus does not require tubular extensions or external teeth on the rotating element to be measured. . .

Thus, it is the Applicant's position that the specific disclosure of Olsen et al. 'H964 fails to impart any suggestion or motivation to look to any reference, much less Hayakawa et al. '269 as discussed in detail below, as to any alternative method, structure or apparatus for determining the speed of the impeller.

Initially, the Applicant respectfully disagrees with the Examiner's assertion that it would have been obvious to carry the teaching of Hayakawa '269 to Olsen et al. 'H964 because Hayakawa '269 does not disclose, suggest or teach in any manner any apparatus for sensing the speed of an element within a torque converter, only a method of calculating vehicle mass. Be that as it may, a thorough review of Hayakawa et al '269, reveals that the methods and structure of this reference are in complete contradistinction to that of Olsen et al. 'H964. Completely different from directly measuring the speed of the pump impeller as in Olsen et al. 'H964, as well as the Applicant's presently claimed invention, Hayakawa '269 merely infers the speed of the pump impeller and performs a vehicle mass calculation utilizing a driving force caused by an engine, running resistance, and vehicle acceleration.

Hayakawa '269 thus actually discloses a pump torque which is not in fact measured, but which is determined according to an engine rotation speed N_e as discussed at column 9, lines 18-32. Hayakawa '269 theoretically calculates the pump torque based on the equation that pump torque is equal to the engine rotation speed squared, multiplied by a torque capacity known to have a constant relationship with torque ratio. This of course may obtain some nominal value for the pump torque, but importantly, will not give an accurate value of the pump torque particularly where there is slip in the input clutch between the pump and the engine input.

Thus, the disclosure and teachings of these two references are entirely distinct from one another where Olsen et al. 'H964 measures and utilizes an actual pump impeller speed

with a magnetic ring internally of the torque converter, and Hayakawa et al. '269 merely equates or infers the pump rotation speed from the engine speed. It is the Applicant's position that the combination of Hayakawa et al. '269 would completely render the entire structure, method and teachings of Olsen et al. 'H964 superfluous as to any combination and eviscerate the entire rationale behind specifically measuring the pump impeller speed within the converter to obtain a more accurate control of the vehicle transmission. Therefore, the Applicant believes that these two references cannot be combined, and that each of these references in fact teach specifically away from a combination as suggested by the Examiner.

Even if the references can be combined, and the Applicant adamantly asserts they can not, the references do not disclose each and every limitation of the Applicant's claimed invention. In Hayakawa et al. '269 the torque capacity $C(e)$ which is stored in the torque converter characteristic storage section 62 is determined according to the engine speed N_e as seen in expressions (10) and (15) (columns 10, 11). Furthermore, the torque ratio $t(e)$ of the converter is determined according to the engine speed $N(e)$ as seen expression (16) (column 11). Thus, the transmission characteristics being stored in Hayakawa's torque converter characteristic storage section 62 are determined according to the engine speed N_e , and not any speed of the pump impeller as in Olsen et al. 'H964.

Thus even a combination of Hayakawa '269 with Olsen et al. 'H964, therefore, still does not disclose the Applicant's specifically claimed feature as in the Applicant's claim 11,

wherein a performance matrix containing characteristic hydrodynamic torque converter values of the torque converter is stored in the electronic control unit, with reference to which, using the rotation speed of the pump impeller wheel (2) and the rotation speed of the turbine rotor (7), the electronic control unit determines the torque of the turbine rotor (7).

Claims 21 and 30 include a similar feature and provide alternative and further clarifying language with respect to this feature, namely

wherein a performance matrix containing characteristic hydrodynamic torque converter values of the torque converter is stored in the electronic control unit, with reference to which, using *the detected speed of the pump impeller wheel*

(2) and the detected speed of the turbine rotor (7), the electronic control unit determines the torque of the turbine rotor (7).

In other words. . .

As the remaining claims 12-20 are dependent upon claim 11 which is now believed to be allowable in view of the above amendments and remarks, the Applicant believes these claims to be allowable as well and therefore only some of the outstanding points raised in the official action with respect to certain dependent claims are addressed below.

In reference to claims 15 and 16, the official action contends that

[i]n Olson et al. 'H964 radially on the inside of impeller wheel 30 is a flange 35 which includes a means 134 at one axial end of an extension of the flange enabling the speed of rotation to be detected. The means 134 can be considered cams insofar as defined in the claims. Means 134 can be considered parallel of the axis of rotation, as can the means 104. (Office Action dated August 18, 2005).

The Applicant respectfully disagrees with such an assessment of the Olsen et al. 'H964 reference for the following reasons.

What Olsen et al. 'H964 actually discloses in observing Fig. 2 is “. . .an electrical signal-generating device 133 consisting primarily of a ring magnet 134 connected to rotate with the impeller element 30, and a sensor unit 136 seating within and extending radially outwardly from the bore 80 of the tubular support member 74” (column 4, line 67 through column 5, line 4).

Olsen et al 'H964, in fact, specifically teaches away from the use of the feature recited in claim 16 “. . .wherein means enabling detection of the speed consist of cams arranged parallel to a rotation axis of the torque converter”. Olsen et al. 'H964 states at column 2, lines 42-44, “[t]he instant speed sensor apparatus does not require tubular extensions of external teeth on the rotating element to measured, and is thus compact and economical to produce”. Apparently, the magnetic ring is utilized to specifically overcome drawbacks associated with teeth or cams on a tubular flange of the impeller pump as in the present invention and, accordingly teaches specifically away from the Applicant's claimed structure. The Applicant notes that independent claim 30 includes a similar feature which is not disclose, taught or suggested by the references alone or in combination, namely the feature;

wherein the pump impeller wheel (2) has an inner axial extension (11) axially depending from the pump impeller wheel (2), the axial extension (11) having an axial end defining cams enabling the rotation speed of the pump impeller wheel (2) to be detected, and the cams are arranged on the axial end of the flange parallel to a rotation axis of the torque converter.

Claims 14 and 23 are rejected, under 35 U.S.C. § 103(a), as being unpatentable over Olsen et al. 'H964 in view of Hayakawa et al. '269 as applied to claims 11, 12, 15-17, 20-22, 24-26, 29 and 30 and further in view of Mamo '197. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

The Applicant respectfully asserts the aforementioned arguments made regarding the combination of the Olsen et al. 'H964 and Hayakawa '269 and any resulting combination. The Applicant also reiterates that there must be some disclosure, suggestion or teaching in the references to motivate one of ordinary skill in the art to combine the reference to disclose each and every limitation of the Applicant's claimed invention. Mamo '197 discloses a hydrodynamic torque converter of the type presently well-known in the art. The Applicant points out that not only is there no teaching, suggesting, or disclosing in either the Olsen et al. 'H964 or Hayakawa '269 references to motivate a combination with Mamo '197, Olsen et al. 'H964 is a more current state of the art of such an torque converter and a combination with it would be against any advancement that Olsen et al. 'H964 discloses.

However, even if the references can be combined, and the Applicant adamantly contends they can not, there is no disclosure of the "second speed sensor is arranged in a positionally fixed component which supports a relative rotational connection with a stator of the torque converter." (Applicant's claim 14). The Examiner states that Olsen et al. 'H964 discloses a second speed sensor "arranged in a positionally fixed component 74 that supports stator 60" (Office Action, page 4). The Examiner combines this with the stator 53 in Mamo '197 which is supported for relative rotation via sprag clutch 59 on fixed component 60.

As disclosed in column 3, lines 43-66 of Mamo '197, the stator is only capable of rotation in a forward direction and is held stationary during any reverse motion, therefore, not capable of complete rotation. Furthermore, Mamo '197 discloses a set of tiltable sprags which allow the stator to rotate. However, as the Examiner may know, when rotation is being measured by two

connected rotational points, the range of motion is limited. Therefore, even combining the references as the Examiner has done, the positionally fixed component is not supporting the relative rotational connection with the stator and, therefore, does not disclose all of the elements of the Applicant's claim 14.

Claims 18, 19, 27 and 28 are rejected, under 35 U.S.C. § 103(a), as being unpatentable over Olsen et al. 'H964 in view of Hayakawa et al. '269 as applied to claims 11, 12, 15-17, 20-22, 24-26, 29 and 30 and further in view of Shirai et al. '168. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

With respect to claim 19, the Applicant point out that there must be some suggestion, disclosure or teaching which would motivate one of ordinary skill in the art to combine the references. Olsen et al. 'H964 expressly states that "it is undesirable to add a tubular extension to the body of the impeller element in order to obtain a more accessible external speed pick-up point, because it would add unnecessary size and cost to the drive line" (column 1, lines 51-54). Therefore, Olsen et al. 'H964 could not be combined with any reference to obviate claim 19 because it explicitly teaches away from the use of such a structure. "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F.2d 680 16 USPQ2d 1430 (Fed.Cir.1990). It is the Applicant's position that disclosure teaching explicitly away from some known reference does not provide the requisite suggestion or motivation required by case law to render the Applicant's claim 19 obvious.

The Applicant believes, based on these arguments, that independent claims 11, 21 and 30 are now in condition for allowance. Whereas the remaining dependent claims not explicitly addressed under this rejection are dependent either directly or indirectly on independent claims 11 and 21, they are believed to also have overcome these rejections.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised obviousness rejections should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability

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of the Olsen et al. 'H694, Hayakawa et al. '269, Mamo '197, Richmond '775 and/or Shirai et al. '168 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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